

## Preface

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Version 1.0

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- Reorient or relocate the receiving antenna
- Increase the separation between the equipment and the receiver
- Connect the equipment onto an outlet on a circuit different from that to which the receiver is connected
- Consult the dealer or an experienced radio/TV technician for help

Shielded interconnect cables and a shielded AC power cable must be employed with this equipment to ensure compliance with the pertinent RF emission limits governing this device. Changes or modifications not expressly approved by the system's manufacturer could void the user's authority to operate the equipment.

## Preface

## Declaration of Conformity

This device complies with part 15 of the FCC rules. Operation is subject to the following conditions:

- This device may not cause harmful interference, and
- This device must accept any interference received, including interference that may cause undesired operation

## Canadian Department of Communications

This class B digital apparatus meets all requirements of the Canadian Interference-causing Equipment Regulations.

Cet appareil numérique de la classe B respecte toutes les exigences du Règlement sur le matériel brouilleur du Canada.

## About the Manual

The manual consists of the following:

### Chapter 1

#### Introducing the Motherboard

Describes features of the motherboard.

Go to  page 1

### Chapter 2

#### Installing the Motherboard

Describes installation of motherboard components.

Go to  page 7

### Chapter 3

#### Using BIOS

Provides information on using the BIOS Setup Utility.

Go to  page 25

### Chapter 4

#### Using the Motherboard Software

Describes the motherboard software

Go to  page 35

## Preface

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## **Chapter 1**

### ***Introducing the Motherboard***

---

#### **Introduction**

Thank you for choosing the RC410-M motherboard. This motherboard is a high performance, enhanced function motherboard that supports LGA775 P4/Celeron D CPUs for high-end business or personal desktop markets.

The motherboard incorporates the RC410 Northbridge (NB) and SB450 Southbridge (SB) chipsets. The RC410 is a sixth generation Intergrated Graphics Processor (IGP) that integrates 3D/2D graphics and a system controller in a single chip. The momory controller supports DDR2 SDRAM interface of DDR2 533/400MHz, with up to maximum memory size of 2 GB. One PCI Express x16 slot, intended for Graphics Interface, is fully compliant to the PCI Express Base Specification revision 1.0a.

The SB450 Southbridge supports three PCI slots which are PCI 2.3 compliant. The SB450 supports an EHCI compliant interface that provides 480Mb/s bandwidth for eight USB 2.0 ports (rear panel x 4, header x 4). Two onboard IDE connectors supports 4 IDE devices in Ultra DMA 133/100/66/33 modes. The Southbridge integrates a Serial ATA host controller that is SATA v1.0 compliant, supporting four SATA ports with maximum transfer rate up to 150 MB/s each.

The RC410-M motherboard is equipped with advanced full set of I/O ports in the rear panel, including PS/2 mouse and keyboard connectors, LPT port, one SPDIFO port, one S\_VEDIO port, VGA port, four USB ports, one optional LAN port, one optional 1394a port (another 1394a header onboard), and audio jacks for microphone, line-in and 8-channel line-out.

## Feature

### Processor

This motherboard uses an LGA775 type of Pentium 4 that carries the following features:

- Accommodates Intel P4/Celeron D processors
- Supports Front Side Bus (FSB) speeds of 800/533 MHz
- Supports “Hyper-Threading” technology CPU

“Hyper-Threading” technology enables the operating system into thinking it’s hooked up to two processors, allowing two threads to be run in parallel, both on separate “logical” processors within the same physical processor.

### Chipset

The RC410 Northbridge (NB) and SB450 Southbridge (SB) chipsets are based on an innovative and scalable architecture with proven reliability and performance.

- |                   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
|-------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>RC410 (NB)</b> | <ul style="list-style-type: none"> <li>• 64-bit single-channel DDR2 SDRAM interface</li> <li>• One PCI Express x16 for Graphics Interface, fully compliant to the PCI Express Base Specification revision 1.0a.</li> <li>• Full support for 3D primitive, Direct3D texture lighting, and OpenGL format for Indirect Vertices in Vertex Walker</li> <li>• Full DirectX 9.0 support (Vertex Shader version 2.0 and Pixel Shader version 2.0)</li> <li>• SURROUNDVIEW™ feature allows support for up to three independent monitors</li> <li>• TV Out display on a PAL or NTSC TV with S_VIDEO output</li> </ul> |
| <b>SB450 (SB)</b> | <ul style="list-style-type: none"> <li>• Compliant with PCI 2.3 specification at 33MHz</li> <li>• Supports Four Serial ATA devices, compliant with Serial ATA 1.0 specification which speeds up to 1.5GHz</li> <li>• Integrated USB 2.0 Host Controller supporting up to eight USB 2.0 ports</li> <li>• Integrated IDE controller supports Ultra DMA 133/100/66/33 modes</li> <li>• Intel HD Audio compliant, supporting 8-channel audio output</li> </ul>                                                                                                                                                   |

### Memory

- Compliant with 64-bit single channel DDR2 SDRAM interface
- Supports 533/400 DDR2 SDRAM
- Accommodates two unbuffered DIMMs, up to 2 GB maximum memory size

### Audio

- 8 channels of DAC support 24/20/16-bit PCM format for 7.1 audio solution
- Supports 192K/96K/48K/44.1KHz DAC sample rate
- Power support: Digital: 3.3V; Analog: 3.5V~5.25V
- Meets Microsoft WHQL/WLP 2.x audio requirements
- Direct Sound 3D™ compatible
- Dolby® Digital Encoder output for consumer electronic application

## Introducing the Motherboard

### 1394a FireWire (Optional)

- Supports provisions of IEEE Std 1394-1995 standard for High-Performance Serial Bus 1.0 and IEEE Std 1394a-2000
- Provides two 1394a fully compliant cable ports at 400/200/100 Mbit/s

### Onboard LAN (Optional)

This motherboard supports the following LAN with following features:

- Supports 10Mb/s and 100Mb/s N-way Auto negotiation operation
- Supports PCI rev. 2.2, 32-bit, 66/33MHz
- Supports Full Duplex Flow Control (IEEE 802.3x)
- Supports Wake-on-LAN function and remote wake-up

### Expansion Options

The motherboard comes with the following expansion options:

- One PCI Express x16 for Graphic Interface
- Three 32-bit PCI v2.3 compliant slots
- Two 40-pin IDE connectors supporting up to 4 IDE devices
- One floppy disk drive interface
- Four 7-pin SATA connectors

The RC410-M motherboard supports UltraDMA bus mastering with transfer rates of 133/100/66/33 MB/s.

### Integrated I/O

The motherboard has a full set of I/O ports and connectors:

- Two PS/2 ports for mouse and keyboard
- One parallel port
- One VGA port
- One S\_VEDIO port
- One SPDIFO port
- Four USB ports
- One 1394a port (optional)
- One LAN port (optional)
- Audio jacks for microphone, line-in and 8-channel High Definition audio output

### BIOS Firmware

This motherboard uses AMI BIOS that enables users to configure many system features including the following:

- Power management
- Wake-up alarms
- CPU parameters
- CPU and memory timing

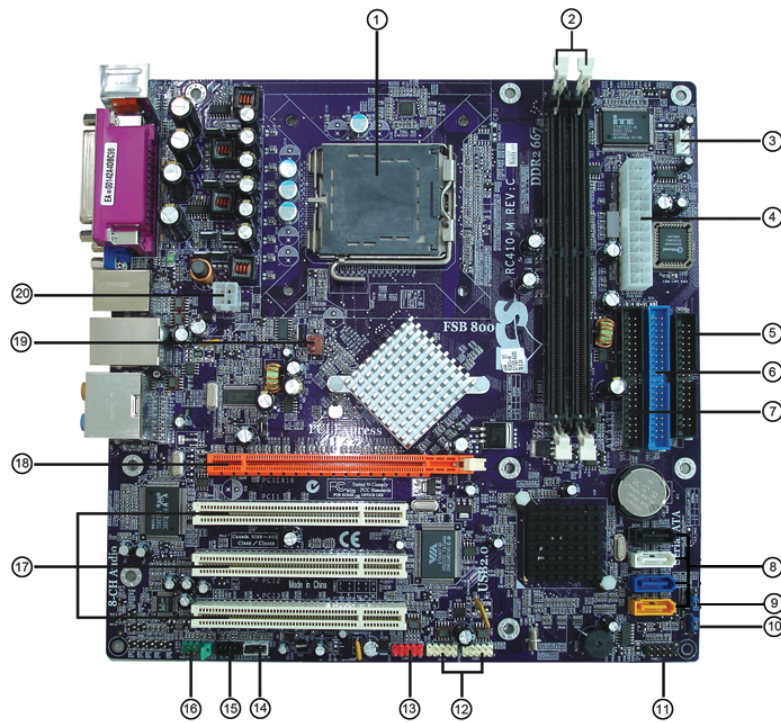
The firmware can also be used to set parameters for different processor clock speeds.



*Some hardware specifications and software items are subject to change without prior notice.*

## Introducing the Motherboard

## Motherboard Components



## Introducing the Motherboard

**Table of Motherboard Components**

| <b>LABEL</b>  | <b>COMPONENT</b>                    |
|---------------|-------------------------------------|
| 1 CPU Socket  | LGA775 socket for Pentium 4 CPUs    |
| 2 DIMM1~2     | 240-pin DDR2 SDRAM slots            |
| 3 CPU_FAN     | CPU cooling fan connector           |
| 4 ATX_POWER   | Standard 24-pin ATX power connector |
| 5 FDD         | Floppy diskette drive connector     |
| 6 IDE 1       | Primary IDE channel                 |
| 7 IDE 2       | Secondary IDE channel               |
| 8 SATA1~4     | Serial ATA connectors               |
| 9 CLR_CMOS_HP | Clear CMOS jumper                   |
| 10 CLR_PWD    | Clear password jumper               |
| 11 PANEL1     | Front panel switch/LED header       |
| 12 USB3~4     | Front Panel USB headers             |
| 13 1394A2*    | Onboard 1394a header                |
| 14 AUX_IN     | Auxiliary Audio input connector     |
| 15 CD_IN1     | Analog audio input connector        |
| 16 AUDIO1     | Front panel audio header            |
| 17 PCI1~3     | 32-bit add-on card slots            |
| 18 PCIEX16    | PCI Express x16 graphics card slot  |
| 19 SYS_FAN    | System cooling fan connector        |
| 20 ATX12V     | 4-pin +12V power connector          |

*“\*” stands for optional components.*

This concludes Chapter 1. The next chapter explains how to install the motherboard.

## Introducing the Motherboard

***Memo***

**Introducing the Motherboard**

## **Chapter 2**

### ***Installing the Motherboard***

---

#### **Safety Precautions**

- Follow these safety precautions when installing the motherboard
- Wear a grounding strap attached to a grounded device to avoid damage from static electricity
- Discharge static electricity by touching the metal case of a safely grounded object before working on the motherboard
- Leave components in the static-proof bags they came in
- Hold all circuit boards by the edges. Do not bend circuit boards

#### **Choosing a Computer Case**

There are many types of computer cases on the market. The motherboard complies with the specifications for the Micro ATX system case. First, some features on the motherboard are implemented by cabling connectors on the motherboard to indicators and switches on the system case. Make sure that your case supports all the features required. Secondly, RC410-M supports one or two floppy diskette drives and four enhanced IDE drives. Make sure that your case has sufficient power and space for all drives that you intend to install.

Most cases have a choice of I/O templates in the rear panel. Make sure that the I/O template in the case matches the I/O ports installed on the rear edge of the motherboard.

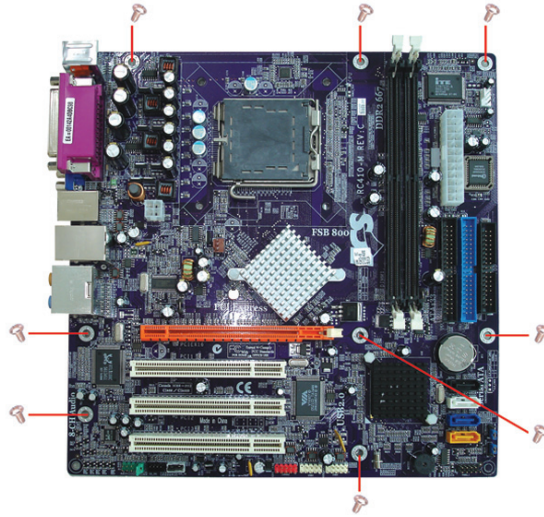
This motherboard carries a Micro ATX form factor of 244 x 244 mm. Choose a case that accommodates this form factor.

#### **Installing the Motherboard in a Case**

Refer to the following illustration and instructions for installing the motherboard in a case.

Most system cases have mounting brackets installed in the case, which correspond the holes in the motherboard. Place the motherboard over the mounting brackets and secure the motherboard onto the mounting brackets with screws.

Ensure that your case has an I/O template that supports the I/O ports and expansion slots on your motherboard.



*Do not over-tighten the screws as this can stress the motherboard.*

## Checking Jumper Settings

This section explains how to set jumpers for correct configuration of the motherboard.

### Setting Jumpers

Use the motherboard jumpers to set system configuration options. Jumpers with more than one pin are numbered. When setting the jumpers, ensure that the jumper caps are placed on the correct pins.

The illustrations show a 2-pin jumper. When the jumper cap is placed on both pins, the jumper is **SHORT**. If you remove the jumper cap, or place the jumper cap on just one pin, the jumper is **OPEN**.

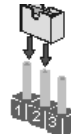


**SHORT**



**OPEN**

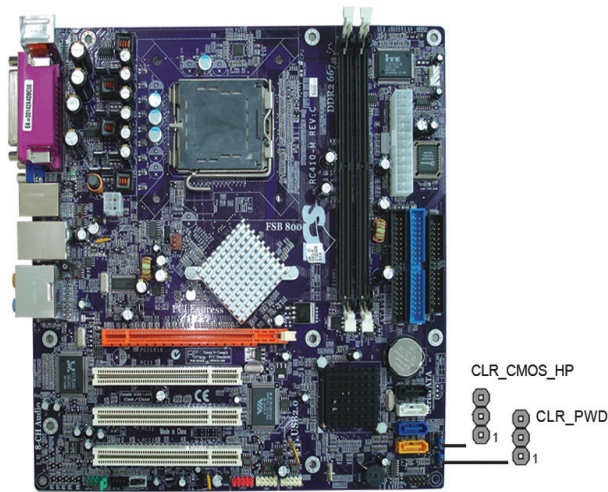
This illustration shows a 3-pin jumper. Pins 1 and 2 are **SHORT**.



## Installing the Motherboard

Checking Jumper Settings

The following illustration shows the location of the motherboard jumpers. Pin 1 is labeled.



Jumper Settings

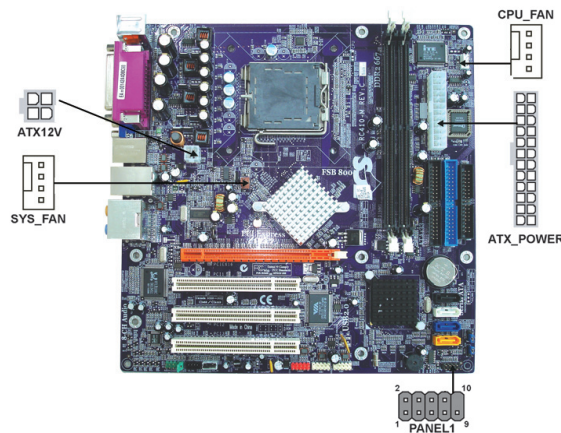
| Jumper      | Type  | Description                              | Setting (default)                                                                                 |                                                                                                        |
|-------------|-------|------------------------------------------|---------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------|
| CLR_CMOS_HP | 3-pin | CLEAR CMOS for HP Spec (BIOS clear CMOS) | 1-2: NORMAL<br>2-3: CLEAR CMOS<br><br>Before clearing the CMOS, make sure to turn off the system. | CLR_CMOS_HP<br> 1 |
| CLR_PWD     | 3-pin | Clear Password for HP Spec               | 1-2: NORMAL<br>2-3: CLEAR                                                                         | BIOS_PWD<br> 1    |

Installing the Motherboard

## Connecting Case Components

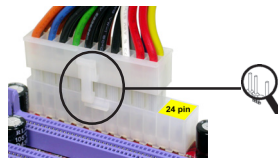
After you have installed the motherboard into a case, you can begin connecting the motherboard components. Refer to the following:

- 1 Connect the CPU cooling fan cable to **CPU\_FAN**.
- 2 Connect the system cooling fan connector to **SYS\_FAN**.
- 3 Connect the case switches and indicator LEDs to **PANEL1**.
- 4 Connect the standard power supply connector to **ATX\_POWER**.
- 5 Connect the auxiliary case power supply connector to **ATX12V**.



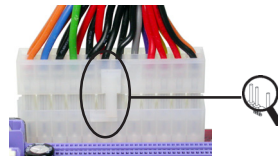
### Connecting 20/24-pin power cable

Users please note that the 20-pin and 24-pin power cables can both be connected to the ATX\_POWER connector. With the 20-pin power cable, just align the 20-pin power cable with the pin 1 of the ATX\_POWER connector. However, using 20-pin power cable may cause the system to become unbootable or unstable because of insufficient electricity.



20-pin power cable

With ATX v1.x power supply, users please note that when installing 20-pin power cable, the latch of power cable clings to the left side of the ATX\_POWER connector latch, just as the picture shows.



24-pin power cable

With ATX v2.x power supply, users please note that when installing 24-pin power cable, the latches of power cable clings to the right side of the ATX\_POWER connector latch.

## Installing the Motherboard

**CPU\_FAN: FAN Power Connector**

| Pin | Signal Name | Function        |
|-----|-------------|-----------------|
| 1   | GND         | System Ground   |
| 2   | +12V        | Power +12V      |
| 3   | Sense       | Sensor          |
| 4   | PWM         | CPU FAN control |



Users please note that the fan connector supports the CPU cooling fan of 1.1A~2.2A (26.4W max) at +12V.

**SYS\_FAN: FAN Power Connector**

| Pin | Signal Name | Function   |
|-----|-------------|------------|
| 1   | GND         | Ground     |
| 2   | +12V        | +12V Power |
| 3   | Sense       | Sensor     |

**ATX12V: ATX 12V Power Connector**

| Pin | Signal Name |
|-----|-------------|
| 1   | Ground      |
| 2   | Ground      |
| 3   | +12V        |
| 4   | +12V        |

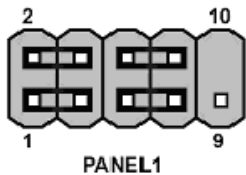
**ATX\_POWER: ATX 24-pin Power Connector**

| Pin | Signal Name | Pin | Signal Name |
|-----|-------------|-----|-------------|
| 1   | +3.3V       | 13  | +3.3V       |
| 2   | +3.3V       | 14  | -12V        |
| 3   | Ground      | 15  | GND         |
| 4   | +5V         | 16  | PS_ON       |
| 5   | Ground      | 17  | GND         |
| 6   | +5V         | 18  | GND         |
| 7   | Ground      | 19  | GND         |
| 8   | PWRGD       | 20  | -5V         |
| 9   | +5VSB       | 21  | +5V         |
| 10  | +12V        | 22  | +5V         |
| 11  | +12V        | 23  | +5V         |
| 12  | +3.3V       | 24  | GND         |

**Installing the Motherboard**

**Front Panel Connector**

The front panel connector (PANEL1) provides a standard set of switch and LED connectors commonly found on ATX or micro-ATX cases. Refer to the table below for information:



| Pin | Signal   | Function         | Pin | Signal     | Function        |
|-----|----------|------------------|-----|------------|-----------------|
| 1   | HD_LED_P | Hard disk LED(+) | 2   | FP PWR/SLP | *MSG LED(+)     |
| 3   | HD_LED_N | Hard disk LED(-) | 4   | FP PWR/SLP | *MSG LED(-)     |
| 5   | RST_SW_N | Reset Switch(-)  | 6   | PWR_SW_P   | Power Switch(+) |
| 7   | RST_SW_P | Reset Switch(+)  | 8   | PWR_SW_N   | Power Switch(-) |
| 9   | RSVD     | Reserved         | 10  | Key        | No pin          |

*\* MSG LED (dual color or single color)*

**Hard Drive Activity LED**

Connecting pins 1 and 3 to a front panel mounted LED provides visual indication when data is being read from or written to the hard drive. To make the LED function properly, an IDE drive should be connected to the onboard IDE interface correctly. The LED also shows the activity for hard drives connected to the SATA connectors.

**Power/Sleep/Message waiting LED**

Connecting pins 2 and 4 to a single or dual-color, front panel mounted LED provides power on/off, sleep, and message waiting indication.

**Reset Switch**

Supporting the reset function requires connecting pin 5 and 7 to a momentary-contact switch that is normally open. When the switch is closed, the board resets and runs POST.

**Power Switch**

Supporting the power on/off function requires connecting pins 6 and 8 to a momentary-contact switch that is normally open. The switch should maintain contact for at least 50 ms to signal the power supply to switch on or off. The time requirement is due to internal debounce circuitry. After receiving a power on/off signal, at least two seconds elapses before the power supply recognizes another on/off signal.

**Installing the Motherboard**

## Installing Hardware

### Installing the Processor



*Caution: When installing a CPU heatsink and cooling fan make sure that you DO NOT scratch the motherboard or any of the surface-mount resistors with the clip of the cooling fan. If the clip of the cooling fan scrapes across the motherboard, you may cause serious damage to the motherboard or its components.*

*On most motherboards, there are small surface-mount resistors near the processor socket, which may be damaged if the cooling fan is carelessly installed.*

*Avoid using cooling fans with sharp edges on the fan casing and the clips. Also, install the cooling fan in a well-lit work area so that you can clearly see the motherboard and processor socket.*

### Before installing the Processor

This motherboard automatically determines the CPU clock frequency and system bus frequency for the processor. You may be able to change these settings by making changes to jumpers on the motherboard, or changing the settings in the system Setup Utility. We strongly recommend that you do not over-clock processors or other components to run faster than their rated speed.



*Warning: Over-clocking components can adversely affect the reliability of the system and introduce errors into your system. Over-clocking can permanently damage the motherboard by generating excess heat in components that are run beyond the rated limits.*

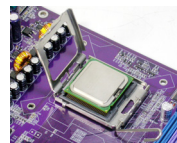
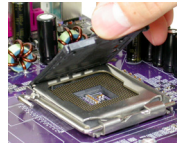
This motherboard has an LGA 775 processor socket. When choosing a processor, consider the performance requirements of the system. Performance is based on the processor design, the clock speed and system bus frequency of the processor, and the quantity of internal cache memory and external cache memory.

## Installing the Motherboard

## CPU Installation Procedure

The following illustration shows CPU installation components.

- A. Unload the cap
  - Use thumb & forefinger to hold the lifting tab of the cap.
  - Lift the cap up and remove the cap completely from the socket.
- B. Open the load plate
  - Use thumb & forefinger to hold the hook of the lever, pushing down and pulling aside unlock it.
  - Lift up the lever.
  - Use thumb to open the load plate. Be careful not to touch the contacts.
- C. Install the CPU on the socket
  - Orientate CPU package to the socket. Make sure you match triangle marker to pin 1 location.
- D. Close the load plate
  - Slightly push down the load plate onto the tongue side, and hook the lever.
  - CPU is locked completely.
- E. Apply thermal grease on top of the CPU.
- F. Fasten the cooling fan supporting base onto the CPU socket on the motherboard.
- G. Make sure the CPU fan is plugged to the CPU fan connector. Please refer to the CPU cooling fan user's manual for more detail installation procedure.



1. To achieve better airflow rates and heat dissipation, we suggest that you use a high quality fan with 3800 rpm at least. CPU fan and heatsink installation procedures may vary with the type of CPU fan/heatsink supplied. The form and size of fan/heatsink may also vary.

2. DO NOT remove the CPU cap from the socket before installing a CPU.

## Installing the Motherboard

### Installing Memory Modules

This motherboard accommodates two memory modules. It can support two 240-pin 1.8V unbuffered DIMM, DDR2 667/533/400. The maximum memory capacity is 2 GB.

#### DDR2 SDRAM memory module table

| Memory module   | Memory Bus     |
|-----------------|----------------|
| <b>DDR2 533</b> | <b>266 MHz</b> |
| <b>DDR2 400</b> | <b>200 MHz</b> |

You must install at least one module in any of the two slots. Each module can be installed with 256 MB to 1 GB of memory.

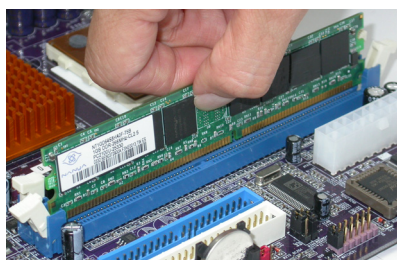


*Do not remove any memory module from its antistatic packaging until you are ready to install it on the motherboard. Handle the modules only by their edges. Do not touch the components or metal parts. Always wear a grounding strap when you handle the modules.*

### Installation Procedure

Refer to the following to install the memory modules.

- 1 This motherboard supports unbuffered DDR2 SDRAM.
- 2 Push the latches on each side of the DIMM slot down.
- 3 Align the memory module with the slot. The DIMM slots are keyed with notches and the DIMMs are keyed with cutouts so that they can only be installed correctly.
- 4 Check that the cutouts on the DIMM module edge connector match the notches in the DIMM slot.
- 5 Install the DIMM module into the slot and press it firmly down until it seats correctly. The slot latches are levered upwards and latch on to the edges of the DIMM.
- 6 Install any remaining DIMM modules.



## Installing the Motherboard

**Table A: DDR2 QVL (Qualified Vender List)**

The following DDR2 memory modules have been tested and qualified for use with this motherboard.

| Type     | Size  | Vendor   | Model Name          |
|----------|-------|----------|---------------------|
| DDR2 400 | 256MB | Hynix    | HYMP532U646-E3 AA   |
|          |       | NANYA    | NT256T64UH4A0F-5A   |
|          | 512MB | Hynix    | HYMP564U648-E3 AA   |
|          |       | Micron   | MT16HTF6464AY-40EB2 |
|          |       | NANYA    | NT512T64U88A0F-5A   |
|          | 1GB   | SAMSUNG  | M378T2953BGO-CCC    |
| DDR2 533 | 256MB | A-DATA   | M2OHY2F3G3110A1B0Z  |
|          |       | Elixir   | M2U25664TUH4A0F-37B |
|          |       | Kingston | KVR533D2N4          |
|          |       | SAMSUNG  | M378T3253FGO-CD5    |
|          |       | SAMSUNG  | M378T3354BZO-CD5    |
|          |       | Ramaxel  | RML 1040M28D5F-533  |
|          | 512MB | Kingston | KVR533D2N4          |
|          |       | Micron   | MT16HTF6464AY-53EB2 |
|          |       | SAMSUNG  | M378T6553BGO-CD5    |
|          | 1GB   | Hynix    | HYMP512U648-C4 AA   |

## ***Installing a Hard Dish Drive/CD-ROM/SATA Hard Drive***

This section describes how to install IDE devices such as a hard disk drive and a CD-ROM drive.

### **About IDE Devices**

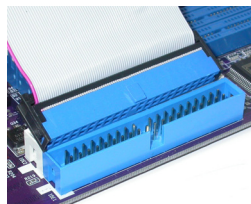
Your motherboard has two IDE channel interfaces (IDE1 & IDE2). Two IDE ribbon cables supporting four IDE devices is bundled with the motherboard.



*You must orient the cable connector so that the pin1 (color) edge of the cable corresponds to the pin 1 of the I/O port connector.*

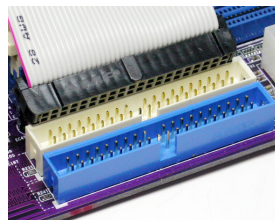
### **IDE1: Primary IDE Connector**

The first hard drive should always be connected to IDE1.



### **IDE2: Secondary IDE Connector**

The second drive on this controller must be set to slave mode. The configuration is the same as IDE1.



IDE devices enclose jumpers or switches used to set the IDE device as MASTER or SLAVE. Refer to the IDE device user's manual. Installing two IDE devices on one cable, ensure that one device is set to MASTER and the other device is set to SLAVE. The documentation of your IDE device explains how to do this.

## **Installing the Motherboard**

### About SATA Connectors

This motherboard features four SATA connectors supporting a total of four drives. SATA, or Serial ATA (Advanced Technology Attachment) is the standard interface for the IDE hard drives which are currently used in most PCs. These connectors are well designed and will only fit in one orientation. Locate the SATA connectors on the motherboard and follow the illustration below to install the SATA hard drives.

### Installing Serial ATA Hard Drives

To install the Serial ATA (SATA) hard drives, use the SATA cable that supports the Serial ATA protocol. This SATA cable comes with an SATA power cable. You can connect either end of the SATA cable to the SATA hard drive or the connector on the motherboard.



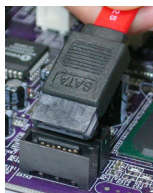
**SATA cable** (optional)



**SATA power cable** (optional)

Refer to the illustration below for proper installation:

- 1 Attach either cable end to the connector on the motherboard.
- 2 Attach the other cable end to the SATA hard drive.
- 3 Attach the SATA power cable to the SATA hard drive and connect the other end to the power supply.



*This motherboard does not support the “Hot-Plug” function.*

## Installing the Motherboard

### ***Installing a Floppy Diskette Drive***

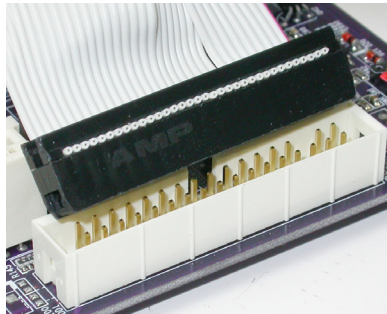
The motherboard has a floppy diskette drive (FDD) interface and ships with a diskette drive ribbon cable that supports one or two floppy diskette drives. You can install a 5.25-inch drive and a 3.5-inch drive with various capacities. The floppy diskette drive cable has one type of connector for a 5.25-inch drive and another type of connector for a 3.5-inch drive.



*You must orient the cable connector so that the pin 1 (color) edge of the cable corresponds to the pin 1 of the I/O port connector.*

#### **FDD: Floppy Disk Connector**

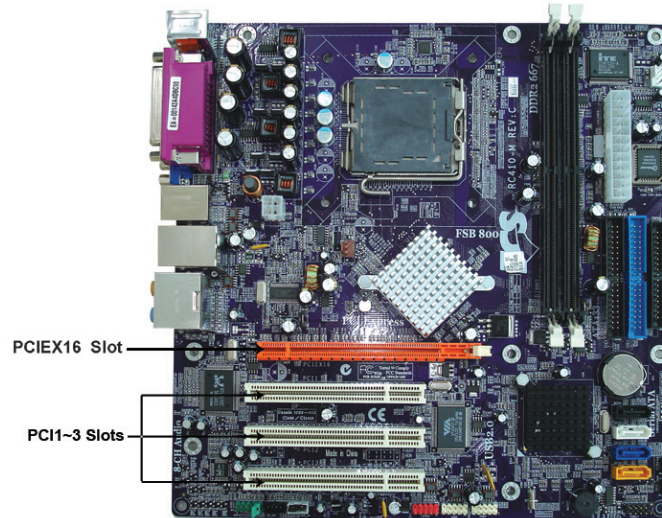
This connector supports the provided floppy drive ribbon cable. After connecting the single end to the onboard floppy connector, connect the remaining plugs on the other end to the floppy drives correspondingly.



## **Installing the Motherboard**

### *Installing Add-on Cards*

The slots on this motherboard are designed to hold expansion cards and connect them to the system bus. Expansion slots are a means of adding or enhancing the motherboard's features and capabilities. With these efficient facilities, you can increase the motherboard's capabilities by adding hardware that performs tasks that are not part of the basic system.



**PCIEX16 Slot** The PCI Express x16 slot is used to install an external PCI Express graphics card that is fully compliant to the PCI Express Base Specification revision 1.0a.

**PCI 1~3 Slots** This motherboard is equipped with three standard PCI slots. PCI stands for Peripheral Component Interconnect and is a bus standard for expansion cards, which for the most part, is a supplement of the older ISA bus standard. The PCI slots on this board are PCI v2.3 compliant.

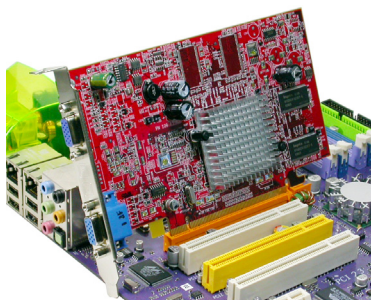


*Before installing an add-on card, check the documentation for the card carefully. If the card is not Plug and Play, you may have to manually configure the card before installation.*

## **Installing the Motherboard**

Follow these instructions to install an add-on card:

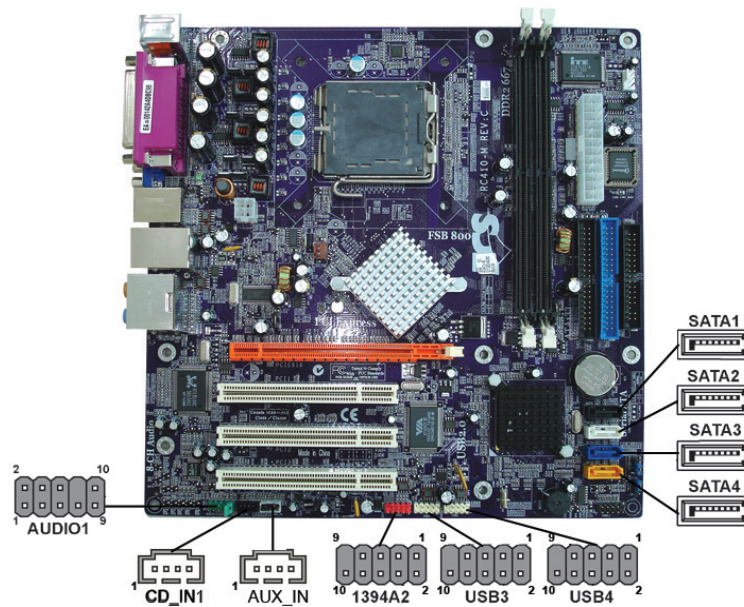
- 1 Remove a blanking plate from the system case corresponding to the slot you are going to use.
- 2 Install the edge connector of the add-on card into the expansion slot. Ensure that the edge connector is correctly seated in the slot.
- 3 Secure the metal bracket of the card to the system case with a screw.



*For some add-on cards, for example graphics adapters and network adapters, you have to install drivers and software before you can begin using the add-on card.*

### Connecting Optional Devices

Refer to the following for information on connecting the motherboard's optional devices:



## Installing the Motherboard

### AUDIO1: Front Panel Audio header

This header allows the user to install auxiliary front-oriented microphone and line-out ports for easier access.

| Pin | Signal Name | Pin | Signal Name   |
|-----|-------------|-----|---------------|
| 1   | PORT1L      | 2   | AUD_GND       |
| 3   | PORT1R      | 4   | PRESENCE#     |
| 5   | PORT2R      | 6   | SENSE1_RETURN |
| 7   | SENSE_SEND  | 8   | KEY           |
| 9   | PORT2L      | 10  | SENSE2_RETURN |

### AUX\_IN: Auxiliary In connector

This connector is an additional line-in audio connector. It allows you to attach a line-in cable when your rear line-in jack is set as line out port for 4-channel function.

| Pin | Signal Name  | Function                       |
|-----|--------------|--------------------------------|
| 1   | Aux-L Audio  | AUX-in left Audio              |
| 2   | Aux-L R&GD   | Aux-L signal return and detect |
| 3   | Aux-R Return | Aux-R signal return            |
| 4   | Aux-R Audio  | AUX-in right Audio             |

### SATA1/2/3/4: Serial ATA connectors

These connectors are used to support the new Serial ATA devices for the highest data transfer rates (150 MB/s), simpler disk drive cabling and easier PC assembly. It eliminates limitations of the current Parallel ATA interface. But maintains register compatibility and software compatibility with Parallel ATA.

| Pin | Signal Name | Pin | Signal Name |
|-----|-------------|-----|-------------|
| 1   | Ground      | 2   | TX+         |
| 3   | TX-         | 4   | Ground      |
| 5   | RX-         | 6   | RX+         |
| 7   | Ground      | -   | -           |

### 1394A2: Onboard IEEE 1394a headers (optional)

Connect this header to any device with IEEE 1394a interface.

| Pin | Signal Name | Pin | Signal Name |
|-----|-------------|-----|-------------|
| 1   | TPA+        | 2   | TPA-        |
| 3   | GND         | 4   | GND         |
| 5   | TPB+        | 6   | TPB-        |
| 7   | Cable-Power | 8   | Cable-Power |
| 9   | Key Pin     | 10  | GND         |

## Installing the Motherboard

### USB3/4: Front Panel USB headers

This connector is an additional line-in audio connector. It allows you to attach a line-in cable when your rear line-in jack is set as line out port for 4-channel function.

| Pin | Signal Name | Function                   |
|-----|-------------|----------------------------|
| 1   | USBPWR      | Front Panel USB Power      |
| 2   | USBPWR      | Front Panel USB Power      |
| 3   | USB_FP_P0-  | USB Port 0 Negative Signal |
| 4   | USB_FP_P1-  | USB Port 1 Negative Signal |
| 5   | USB_FP_P0+  | USB Port 0 Positive Signal |
| 6   | USB_FP_P1+  | USB Port 1 Positive Signal |
| 7   | GND         | Ground                     |
| 8   | GND         | Ground                     |
| 9   | Key         | No pin                     |
| 10  | NC          | No connection              |

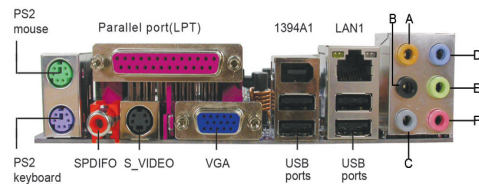
### CD\_IN1: Analog audio input header

| Pin | Signal Name | Function          |
|-----|-------------|-------------------|
| 1   | CD-L Audio  | CD-In left Audio  |
| 2   | CD-GND      | CD-Ground         |
| 3   | CD-GND      | CD-Ground         |
| 4   | CD-R Audio  | CD-In right Audio |

## Installing the Motherboard

### Connecting I/O Devices

The backplane of the motherboard has the following I/O ports:



- PS2 Mouse

Use the upper PS/2 port to connect a PS/2 pointing device.
- PS2 Keyboard

Use the lower PS/2 port to connect a PS/2 keyboard.
- Parallel Port (LPT)

Use LPT1 to connect printers or other parallel communications devices.
- VGA Port

Connect your monitor to the VGA port.
- LAN Port (optional)

Connect an RJ-45 jack to the LAN port to connect your computer to the Network.
- USB Ports

Use the USB ports to connect USB devices.
- 1394A1 Port (optional)

Use the 1394a port to connect any 1394a device.
- SPDIFO

Use the SPDIFO port to provide S/PDIF (Sony/Philips Digital Interface ) output to digital multimedia device
- S\_VIDEO

Connect the S\_VIDEO port to any device with an S\_VIDEO input jack
- Audio Ports

Use the audio jacks to connect audio devices. The D port is for stereo line-in signal, while the F port is for microphone in signal. This motherboard supports 8-channel audio devices that correspond to the A, B, C, and E port respectively. In addition, all of the 3 ports, B, C, and E provide users with both right & left channels individually. Users please refer to the following note for specific port function definition.



|                    |                |
|--------------------|----------------|
| A: Center & Woofer | D: Line-in     |
| B: Back Surround   | E: Front Out   |
| C: Side Surround   | F: Mic_in Rear |

*The above port definition can be changed to audio input or audio output by changing the driver utility setting.*

This concludes Chapter 2. The next chapter covers the BIOS.

## Installing the Motherboard

## **Chapter 3**

### ***Using BIOS***

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#### **About the Setup Utility**

The computer uses the latest AMI BIOS with support for Windows Plug and Play. The CMOS chip on the motherboard contains the ROM setup instructions for configuring the motherboard BIOS.

The BIOS (Basic Input and Output System) Setup Utility displays the system's configuration status and provides you with options to set system parameters. The parameters are stored in battery-backed-up CMOS RAM that saves this information when the power is turned off. When the system is turned back on, the system is configured with the values you stored in CMOS.

The BIOS Setup Utility enables you to configure:

- Hard drives, diskette drives and peripherals
- Video display type and display options
- Password protection from unauthorized use
- Power Management features

The settings made in the Setup Utility affect how the computer performs. Before using the Setup Utility, ensure that you understand the Setup Utility options.

This chapter provides explanations for Setup Utility options.

#### ***The Standard Configuration***

A standard configuration has already been set in the Setup Utility. However, we recommend that you read this chapter in case you need to make any changes in the future.

This Setup Utility should be used:

- when changing the system configuration
- when a configuration error is detected and you are prompted to make changes to the Setup Utility
- when trying to resolve IRQ conflicts
- when making changes to the Power Management configuration
- when changing the password or making other changes to the Security Setup

#### ***Entering the Setup Utility***

When you power on the system, BIOS enters the Power-On Self Test (POST) routines. POST is a series of built-in diagnostics performed by the BIOS. After the POST routines are completed, the following message appears:

### ***BIOS Navigation Keys***

The BIOS navigation keys are listed below:

| KEY | FUNCTION      |
|-----|---------------|
| ↔   | Select Screen |
| ↑↓  | Select Item   |
| + - | Change Field  |
| Tab | Select Field  |
| F1  | General Help  |
| F5  | Load Defaults |
| F10 | Save and Exit |
| ESC | Exit          |

### ***Updating the BIOS***

You can download and install updated BIOS for this motherboard from the manufacturer's Web site. New BIOS provides support for new peripherals, improvements in performance, or fixes for known bugs. Install new BIOS as follows:

- 1 If your motherboard has a BIOS protection jumper, change the setting to allow BIOS flashing.
- 2 If your motherboard has an item called Firmware Write Protect in Advanced BIOS features, disable it. (Firmware Write Protect prevents BIOS from being overwritten).
- 3 Create a bootable system disk. (Refer to Windows online help for information on creating a bootable system disk.)
- 4 Download the Flash Utility and new BIOS file from the manufacturer's Web site. Copy these files to the system diskette you created in Step 3.
- 5 Turn off your computer and insert the system diskette in your computer's diskette drive. (You might need to run the Setup Utility and change the boot priority items on the Advanced BIOS Features Setup page, to force your computer to boot from the floppy diskette drive first.)
- 6 At the A:\ prompt, type the Flash Utility program name, command, ROMFileName and press <Enter>. EX: AFUDOS /iROMFileName /pbnc.
- 7 When the installation is complete, remove the floppy diskette from the diskette drive and restart your computer. If your motherboard has a Flash BIOS jumper, reset the jumper to protect the newly installed BIOS from being overwritten.

### ***Using BIOS***

When you start the Setup Utility, the main menu appears. The main menu of the Setup Utility displays a list of the options that are available. A highlight indicates which option is currently selected. Use the cursor arrow keys to move the highlight to other options. When an option is highlighted, execute the option by pressing <Enter>.

Some options lead to pop-up dialog boxes that prompt you to verify that you wish to execute that option. Other options lead to dialog boxes that prompt you for information.

Some options (marked with a triangle ►) lead to submenus that enable you to change the values for the option. Use the cursor arrow keys to scroll through the items in the submenu.

In this manual, default values are enclosed in parenthesis. Submenu items are denoted by a triangle ►.

## **Using BIOS**

## Main Features

This option displays basic information about your system.

BIOS CMOS Setup Utility- Copyright (C) 1985-2004, American Megatrends, Inc.

| Main                      | Advanced         | Power | Boot | Exit                                                                                                                                              |
|---------------------------|------------------|-------|------|---------------------------------------------------------------------------------------------------------------------------------------------------|
| System Time (mm:dd:yy)    | [00:59:19]       |       |      | Use [ENTER], [TAB]<br>or [SHIFT-TAB] to<br>select a field.<br><br>Use [+] or [-] to<br>configure system Time.                                     |
| System Date (hh:mm:ss)    | [Thu 09/08/2005] |       |      |                                                                                                                                                   |
| Language                  | [English]        |       |      |                                                                                                                                                   |
| Floppy Diskette A:        | [Not Installed]  |       |      |                                                                                                                                                   |
| ► First Channel Device 0  | : [Hard Disk]    |       |      | ↔ Select Screen<br>↑↓ Select Item<br>+ - Change Field<br>Tab Select Field<br>F1 General Help<br>F5 Load Defaults<br>F10 Save and Exit<br>ESC Exit |
| ► First Channel Device 1  | : [ATAPI CDROM]  |       |      |                                                                                                                                                   |
| ► Second Channel Device 0 | : [Not Detected] |       |      |                                                                                                                                                   |
| ► Second Channel Device 1 | : [Not Detected] |       |      |                                                                                                                                                   |
| ► Third Channel Device 0  | : [Not Detected] |       |      |                                                                                                                                                   |
| ► Fourth Channel Device 0 | : [Not Detected] |       |      |                                                                                                                                                   |
| ► Fifth Channel Device 0  | : [Not Detected] |       |      |                                                                                                                                                   |
| ► Sixth Channel Device 0  | : [Not Detected] |       |      |                                                                                                                                                   |
| Installed Memory          | 512MB/PC2-3200   |       |      |                                                                                                                                                   |
| Memory Bank 1             | 256MB DDR2 SDRAM |       |      |                                                                                                                                                   |
| Memory Bank 2             | 256MB DDR2 SDRAM |       |      |                                                                                                                                                   |
| BIOS Revision             | 0.04 09/08/05    |       |      |                                                                                                                                                   |
| Core Version              | 08.00.12         |       |      |                                                                                                                                                   |

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### System Time and Date

The System Time and Date items show the current date and time on the computer. If you are running a Windows OS, these items are automatically updated whenever you make changes to the Windows Date and Time Properties utility.

### Language (English)

This item determines the Language version of the BIOS; it supports three languages: English, French and Spanish.

### Floppy Diskette A (Not Installed)

This item defines the characteristics of any diskette drive attached to the system. You can connect one diskette drive to this motherboard.

### First /Second/Third/Fouth/Fifth/Sixth Channel Device 0/1

Leave this item at Auto to enable the system to automatically detect and configure IDE/SATA devices on the channel. If it fails to find a device, change the value to Manual and then manually configure the drive by entering the characteristics of the drive in the items described below. Please note that if you choose IDE Channel 2/3 Master, the item may change to Extended IDE Drive.

Refer to your drive's documentation or look on the drive casing if you need to obtain this information. If no device is installed, change the value to None.

### ► First Channel Device 0 (Hard Disk)

Your computer has two IDE channels (Primary and Secondary) and each channel can be installed with one or two devices (Master and Slave). Use these items to configure each device on the IDE channel.

Press <Enter> to display the IDE submenu.

## Using BIOS

|                                                                             |                   |       |                  |                                                                                                                                 |
|-----------------------------------------------------------------------------|-------------------|-------|------------------|---------------------------------------------------------------------------------------------------------------------------------|
| BIOS CMOS Setup Utility- Copyright (C) 1985-2004, American Megatrends, Inc. |                   |       |                  |                                                                                                                                 |
| Main                                                                        | Advanced          | Power | Boot             | Exit                                                                                                                            |
| Device                                                                      | : Hard Disk       |       |                  | While entering setup, BIOS auto detects the presence of IDE devices. This displays the status of auto detection of IDE devices. |
| Vendor                                                                      | : MAXTOR 6L080L4  |       |                  |                                                                                                                                 |
| Size                                                                        | : 80.0GB          |       |                  |                                                                                                                                 |
| LBA Mode                                                                    | : Supported       |       |                  |                                                                                                                                 |
| Block Mode                                                                  | : 16Sectors       |       |                  |                                                                                                                                 |
| PIO Mode                                                                    | : 4               |       |                  |                                                                                                                                 |
| Async DMA                                                                   | : MultiWord DMA-2 |       |                  |                                                                                                                                 |
| Ultra DMA                                                                   | : Ultra DMA-6     |       |                  |                                                                                                                                 |
| SMART Support                                                               |                   |       | ↔                | Select Screen                                                                                                                   |
| Type                                                                        | [Auto]            | ↑↓    | Select Item      |                                                                                                                                 |
| Block ( Multi-Sector Transfer                                               | [Auto]            | Enter | Go to Sub Screen |                                                                                                                                 |
| PIO Mode                                                                    | [Auto]            | F1    | General Help     |                                                                                                                                 |
| DMA Mode                                                                    | [Auto]            | F5    | Load Defaults    |                                                                                                                                 |
| 32Bit Data Transfer                                                         | [Enabled]         | F10   | Save and Exit    |                                                                                                                                 |
|                                                                             |                   | ESC   | Exit             |                                                                                                                                 |
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► **SMART Support**

Press the <Enter> key on a selected hard disk from the BIOS Setup’s Main menu opens a second-level page showing the disk’s detailed information.

|                                                                             |  |                                                                                                                                     |
|-----------------------------------------------------------------------------|--|-------------------------------------------------------------------------------------------------------------------------------------|
| BIOS CMOS Setup Utility- Copyright (C) 1985-2004, American Megatrends, Inc. |  |                                                                                                                                     |
| Main                                                                        |  |                                                                                                                                     |
| SMART Short Self-Test                                                       |  | While entering setup, BIOS auto detects the presence of IDE devices. This displays the status of auto detection of IDE devices.     |
| SMART Status Check                                                          |  |                                                                                                                                     |
| SMART Extended Self-Test                                                    |  |                                                                                                                                     |
| Enter : Accept, Esc: About                                                  |  |                                                                                                                                     |
|                                                                             |  |                                                                                                                                     |
|                                                                             |  |                                                                                                                                     |
|                                                                             |  | ↔ Select Screen<br>↑↓ Select Item<br>Enter Go to Sub Screen<br>F1 General Help<br>F5 Load Defaults<br>F10 Save and Exit<br>ESC Exit |
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**SMART Short Self-Test**

This function reports the operational status of a hard disk by performing a quick functional test that reads and/or writes a pirtion of the disk.

**SMART Extended Self-Test**

This function reports the operational status of a hard disk by performing a functional test for the entire disk.

**SMART Status Check**

This function is intended to be used as a preventive measure by warning the user of an imminent hard disk faifure.

Press <Esc> to return to the Main page.

**Type (Auto)**

Use this item to configure the type of the IDE device that you specify.  
If the feature is enabled, it will enhance hard disk performance by reading or writing more data during each transfer.

Using BIOS

**Block (Multi-Sector Transfer)**

If the feature is enabled, it will enhance hard disk performance by reading or writing more data during each transfer.

**PIO Mode (Auto)**

Use this item to set the PIO mode to enhance hard disk performance by optimizing the hard disk timing.

**DMA Mode (Auto)**

DMA capability allows the improved the transfer-speed and data-integrity for compatible IDE devices.

**32Bit Data Transfer (Enabled)**

Use this item to enable 32-bit access to maximize the IDE hard disk data transfer rate.

Press <Esc> to return to the Main page.

**Installed Memory (512MB/PC2-3200)**

This item shows the total memory size and type that you installed.

**Memory Bank 1/2 (256MB DDR2 SDRAM)**

These items show the memory size and type of each DIMM.

**BIOS Revision (0.04 09/08/05)**

This item displays the date that the BIOS was built.

**Core Version (08.00.12)**

This item displays BIOS version.

Press <Esc> to return to the Main BIOS Setting page.

**►Advanced Features**

This option defines advanced information about your system.

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| Main                                                                                | Advanced | Power | Boot | Exit              |
|-------------------------------------------------------------------------------------|----------|-------|------|-------------------|
| Setting items on this menu to incorrect values may cause your system to malfunction |          |       |      |                   |
| CPU Type : Intel (R) Pentium (R) 4 CPU 3.00GHz with HT Technology                   |          |       |      | No                |
| CPU Speed : 3.00 GHz/800 MHz                                                        |          |       |      | Yes               |
| Cache RAM : 1024KB                                                                  |          |       |      |                   |
| Plug and Play OS [Yes]                                                              |          |       |      |                   |
| Primary Video Adapter [PCI]                                                         |          |       |      |                   |
| Onboard Video Memory Size [128MB]                                                   |          |       |      |                   |
| PS/2 Mouse [Auto Detect]                                                            |          |       |      |                   |
| ► Onboard PATA/SATA Adapters                                                        |          |       |      |                   |
| USB Legacy Mode Support [Auto]                                                      |          |       |      |                   |
| Onboard TV-out Format [NTSC]                                                        |          |       |      | ↔ Select Screen   |
| Onboard LAN [Enabled]                                                               |          |       |      | ↑↓ Select Item    |
| Onboard Lan Boot ROM [Disabled]                                                     |          |       |      | + - Change Option |
| Onboard 1394 [Enabled]                                                              |          |       |      | F1 General Help   |
| Supervisor and User Passwords                                                       |          |       |      | F5 Load Defaults  |
| ► I/O Device Configuration                                                          |          |       |      | F10 Save and Exit |
|                                                                                     |          |       |      | ESC Exit          |

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**Using BIOS**

**CPU Type**

This item shows the type of CPU installed in your system.

**CPU Speed**

This item decides CPU speed installed in your system.

**CPU Cache RAM (1024K)**

This item shows the total L2 Cache size that you installed. The cache size will vary according to different CPUs you installed.

**PS/2 Mouse (Auto Detect)**

Use this item to enable, disable or auto detect PS/2 mouse.

**Plug and Play OS (Yes)**

Set this option to Yes unless your computer is running a non-Microsoft operating system.

**Primary Video Adapter (PCI)**

Use this item to specify whether your graphics adapter is installed in one of the PCI slots or is integrated on the motherboard.

**Onboard Video Memory Size (64MB)**

This item applies to chipsets/motherboards capable of the HyperMemory Support.

Supported onboard video memory size (read-only) is as follows:

- a. 0 – 511 MB system memory: 32MB
- b. 512 MB and larger system memory: 64MB

**►OnBoard PATA/SATA Adapters (Press Enter)**

Scroll to this item and press <Enter> to view the following screen:

BIOS CMOS Setup Utility- Copyright (C) 1985-2004, American Megatrends, Inc.

Advanced

|                        |           |                                                                                                                                                                                                        |
|------------------------|-----------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Local Bus IDE Adapter  | [Both]    | DISABLED: disables the integrated IDE Controller.<br>PRIMARY: enables only the Primary IDE Controller.<br>SECONDARY: enables only the Secondary IDE Controller.<br>BOTH: enables both IDE Controllers. |
| Onboard SATA-1 Adapter | [Enabled] |                                                                                                                                                                                                        |
| Onboard SATA-2 Adapter | [Enabled] |                                                                                                                                                                                                        |

↔

Select Screen

↑↓

Selecct Item

+ -

Change Option

F1

General Help

F5

Load Defaults

F10

Save and Exit

ESC

Exit

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**Local Bus IDE Adapter (Both)**

Use this item to enable or disable the internal IDE channels that are integrated on the motherboard.

**Onboard SATA-1/2 Adapters (Enabled)**

This item allows you to enable or disable the onboard Serial ATA controller

Press <Esc> to return to the Advanced Features page.

**USB Legacy Mode Support (Auto)**

This item allows the BIOS to interact with a USB keyboard or mouse to work with MS-DOS based utilities and non-Windows modes.

**OnBoard TV-out Format (NTSC)**

This item displays the current selection when the device is present. Options:PAL,NTSC.

**Onboard LAN (Enabled)**

Enables and disables the onboard LAN.

**Onboard Lan Boot ROM (Disabled)**

This item allows you to enable or disable the onboard LAN boot ROM function.

**Onboard 1394 (Enabled)**

Enables and disables the onboard IEEE 1394 controller.

**► Supervisor/User Password**

Scroll to this item and press <Enter> to view the following screen:

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| Advanced                   |           |                                                                                                                            |
|----------------------------|-----------|----------------------------------------------------------------------------------------------------------------------------|
| Supervisor Password        | :Disabled | Install or Change the password.                                                                                            |
| User Password              | :Disabled |                                                                                                                            |
| Change Supervisor Password |           | ←→ Select Screen<br>↑↓ Select Item<br>Enter Change<br>F1 General Help<br>F5 Load Defaults<br>F10 Save and Exit<br>ESC Exit |
| Change User Password       |           |                                                                                                                            |
|                            |           |                                                                                                                            |
|                            |           |                                                                                                                            |
|                            |           |                                                                                                                            |
|                            |           |                                                                                                                            |

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**Supervisor Password/User Password (Disabled)**

This item indicates whether a supervisor password/user password has been set. If the password has been installed, *Enabled* displays. If not, *Disabled* displays.

**Change Supervisor Password/Change User Password**

You can select this option and press <Enter> to access the sub-menu. You can use the sub-menu to change the supervisor password.

Press <Esc> to return to the Advanced Features page.

### ► I/O Device Configuration (Press Enter)

Scroll to this item and press <Enter> to view the following screen:

#### **CPU Type**

This item shows the type of CPU installed in your system.

#### **CPU Speed**

This item decides CPU speed installed in your system.

#### **CPU Cache RAM (1024K)**

This item shows the total L2 Cache size that you installed. The cache size will vary according to different CPUs you installed.

#### **PS/2 Mouse (Auto Detect)**

Use this item to enable, disable or auto detect PS/2 mouse.

#### **Parallel Port (Enabled)**

This item enables the parallel port.

#### **Mode (ECP)**

This item helps to select the mode of the parallel port. If ECP mode is selected, DMA3 is used.

#### **Base I/O Address (378)**

This item helps to select the base I/O address for the parallel port.

#### **Interrupt (IRQ7)**

This item helps to select the IRQ for the parallel port.

Press <Esc> to return to the Advanced Features page.

#### **Onboard Audio (Auto)**

This field should be displayed only when an onboard audio codec (AC'97 or HD Audio) is present. Options: Disabled, Enabled, Auto.

### ► Hardware Monitor (Press Enter)

Scroll to this item and press <Enter> to view the following screen:

|                                                                             |              |                                                                                                                                                              |
|-----------------------------------------------------------------------------|--------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------|
| BIOS CMOS Setup Utility- Copyright (C) 1985-2004, American Megatrends, Inc. |              |                                                                                                                                                              |
| Advanced                                                                    |              |                                                                                                                                                              |
| CPU Fan Speed                                                               | : 1163 RPM:  | <div>↔ Select Screen</div> <div>↑↓ Select Item</div> <div>F1 General Help</div> <div>F5 Load Defaults</div> <div>F10 Save and Exit</div> <div>ESC Exit</div> |
| System Fan Speed                                                            | : N/A        |                                                                                                                                                              |
| CPU Temperature                                                             | : 39°C/102°F |                                                                                                                                                              |
|                                                                             |              |                                                                                                                                                              |
| v 02.58 (C) Copyright 1985-2004, American Megatrends, Inc.                  |              |                                                                                                                                                              |

These items allow end users and technicians to monitor data provided by the BIOS on this motherboard. You cannot make changes to these fields.

- CPU Temperature
- CPU Fan Speed
- System Fan Speed

Press <Esc> to return to the Advanced Features page.

## Using BIOS

### ► Power Features

This option defines advanced information about your system.

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| Main                                                                                                                 | Advanced | Power | Boot | Exit                                                                                                                                                                                    |
|----------------------------------------------------------------------------------------------------------------------|----------|-------|------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| After AC Power Failure [Stay Off]<br>WOL (Wake-On-Lan) in S4 [Disabled]<br>Hyper-Threading [Enabled]<br>XD [Enabled] |          |       |      | <b>Option</b><br><br>Power On<br>Stay Off<br>Auto<br><br>↔ Select Screen<br>↑↓ Select Item<br>+ - Change Option<br>F1 General Help<br>F5 Load Defaults<br>F10 Save and Exit<br>ESC Exit |

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#### After AC Power Failure (Stay Off)

This item enables your computer to automatically restart to its last operating status after power returns from a power failure.

#### WOL(Wake-On-LAN) in S4 (Disabled)

This item allows the system to wake up from S4 by LAN.

#### Hyper-Threading (Enabled)

This item allows users to enable or disable the CPU Hyper-Threading function.

#### XD (Enabled)

This item should be enabled in order to enable or disable the NX support.

Press <Esc> to return to the Power BIOS Settings page.

### ► Boot Features

This option defines advanced information about your system.

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| Main                                                                                                                                                                                                                                                                                                                                                                                                              | Advanced | Power | Boot | Exit                                                                                                                                                                                                                                  |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------|-------|------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Boot-time diagnostic Screen [Disabled]<br><br>1st Boot Device [Floppy Group]<br>2nd Boot Device [CD-ROM Group]<br>3rd Boot Device [Hard Drive Group]<br>4th Boot Device [Network Boot Group]<br><br>► Floppy Group Boot Priority [1st FLOPPY DRIVE]<br>► CD-ROM Group Boot Priority [PS-Pioneer DVD-ROM]<br>► Hard Drive Group Boot Priority [PM-MAXTOR 6L080L4]<br>► Network Group Boot Priority [Not Installed] |          |       |      | Enabled: Displays normal POST messages<br>Disabled: Displays OEM Logo instead of POST messages.<br><br>↔ Select Screen<br>↑↓ Select Item<br>+ - Change Option<br>F1 General Help<br>F5 Load Defaults<br>F10 Save and Exit<br>ESC Exit |

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## Using BIOS

**Boot-time Diagnostic screen (Disabled)**

This item determines whether the information will be displayed on the screen during POST phase. If the item is disabled, the screen will not show CPU and hardware information, then the HP logo will be show on the screen.

**First/Second/Third/Four Boot Device (Floppy Group/CDROM/Hard Drive Group/Network Group)**

Use these four items to select the priority and order of the devices that your system searches for an operating system at start-up time.

Press <Esc> to return to the Main BIOS Setting page.

► **Exit Features**

This option displays basic information about your system.

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|                                                                                                         |          |       |      |                                                                                                                                                                                                                                                |
|---------------------------------------------------------------------------------------------------------|----------|-------|------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Main                                                                                                    | Advanced | Power | Boot | Exit                                                                                                                                                                                                                                           |
| Exit Saving Changes<br>Exit discarding Changes<br>Load Setup Default<br>Discard Changes<br>Save Changes |          |       |      | Exit system setup<br>after saving the<br>changes.<br><br>F10 key can be used<br>for this operation.<br><br>↔ Select Screen<br>↑↓ Selecc Item<br>Enter Go to Sub Screen<br>F1 General Help<br>F5 Load Defaults<br>F10 Save and Exit<br>ESC Exit |

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**Exit Saving Changes**

This item helps to exit system setup and save changes to CMOS

**Exit discarding Changes**

This item helps to exit system setup without saving changes.

**Load Setup Default**

This item helps to load defaults for all setup items.

**Discard Changes**

This item helps to load previous values from CMOS for all setup items.

**Save Changes**

This item enables to save setup data to CMOS.

## Chapter 4

### Using the Motherboard Software

#### About the Software CD-ROM

The support software CD-ROM that is included in the motherboard package contains all the drivers and utility programs needed to properly run the bundled products. Below you can find a brief description of each software program, and the location for your motherboard version. More information on some programs is available in a README file, located in the same directory as the software. Before installing any software, always inspect the folder for files named README.TXT, INSTALL.TXT, or something similar. These files may contain important information that is not included in this manual.



*The Intel High Definition audio functionality unexpectedly quits working in Windows Server 2003 Service Pack 1 or Windows XP Professional x64 Edition. Users need to download and install the update packages from the Microsoft Download Center “before” installing HD audio driver bundled in the driver CD. Please log on to <http://support.microsoft.com/default.aspx?scid=kb;en-us;901105#appliesto> for more information.*

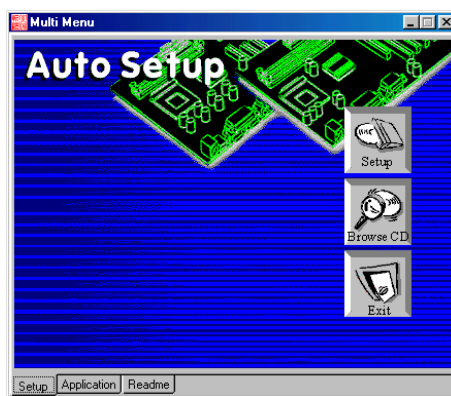
#### Auto-installing under Windows 2000/XP

The Auto-install CD-ROM makes it easy for you to install the drivers and software for your motherboard.



*If the Auto-install CD-ROM does not work on your system, you can still install drivers through the file manager for your OS (for example, Windows Explorer). Refer to the Utility Folder Installation Notes later in this chapter.*

The support software CD-ROM disc loads automatically under Windows 2000/XP. When you insert the CD-ROM disc in the CD-ROM drive, the autorun feature will automatically bring up the install screen. The screen has three buttons on it, Setup, Browse CD and Exit.



*If the opening screen does not appear; double-click the file “setup.exe” in the root directory.*

### Using the Motherboard Software

Setup Tab

|           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
|-----------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Setup     | Click the <b>Setup</b> button to run the software installation program. Select from the menu which software you want to install.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
| Browse CD | <p>The <b>Browse CD</b> button is the standard Windows command that allows you to open Windows Explorer and show the contents of the support CD.</p> <p>Before installing the software from Windows Explorer, look for a file named README.TXT, INSTALL.TXT or something similar. This file may contain important information to help you install the software correctly.</p> <p>Some software is installed in separate folders for different operating systems, such as DOS, WIN NT, or WIN98/95. Always go to the correct folder for the kind of OS you are using.</p> <p>In install the software, execute a file named SETUP.EXE or INSTALL.EXE by double-clicking the file and then following the instructions on the screen.</p> |
| Exit      | The <b>EXIT</b> button closes the Auto Setup window.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |

Application Tab

Lists the software utilities that are available on the CD.

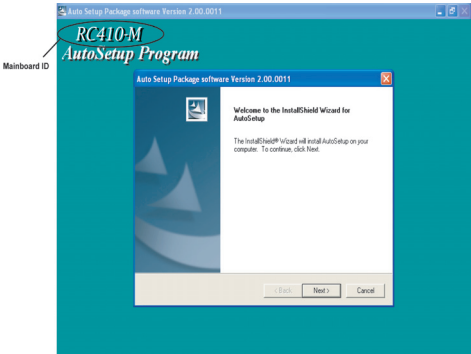
Read Me Tab

Displays the path for all software and drivers available on the CD.

Running Setup

Follow these instructions to install device drivers and software for the motherboard:

- 1. Click **Setup**. The installation program begins:

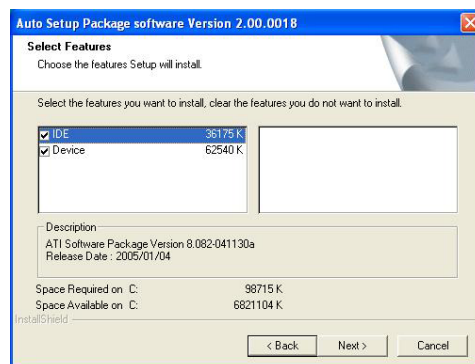


The following screens are examples only. The screens and driver lists will be different according to the motherboard you are installing.

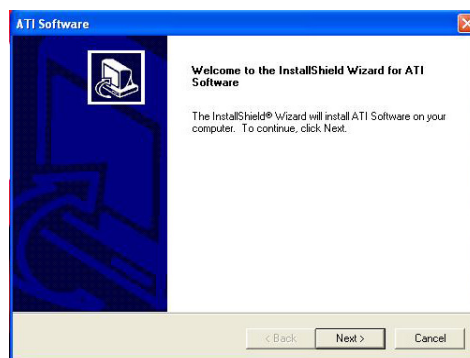
The motherboard identification is located in the upper left-hand corner.

Using the Motherboard Software

2. Click **Next**. The following screen appears:



3. Check the box next to the items you want to install. The default options are recommended.
4. Click **Next** run the Installation Wizard. An item installation screen appears:



5. Follow the instructions on the screen to install the items.

Drivers and software are automatically installed in sequence. Follow the onscreen instructions, confirm commands and allow the computer to restart a few times to complete the installation.

## Using the Motherboard Software

## Manual Installation

Insert the CD in the CD-ROM drive and locate the PATH.DOC file in the root directory. This file contains the information needed to locate the drivers for your motherboard.

Look for the chipset and motherboard model; then browse to the directory and path to begin installing the drivers. Most drivers have a setup program (SETUP.EXE) that automatically detects your operating system before installation. Other drivers have the setup program located in the operating system subfolder.

If the driver you want to install does not have a setup program, browse to the operating system subfolder and locate the readme text file (README.TXT or README.DOC) for information on installing the driver or software for your operating system.

## Utility Software Reference

All the utility software available from this page is Windows compliant. They are provided only for the convenience of the customer. The following software is furnished under license and may only be used or copied in accordance with the terms of the license.



*These software(s) are subject to change at anytime without prior notice. Please refer to the support CD for available software.*

### **AWARD/AMI Flash Utility**

*This utility lets you erase the system BIOS stored on a Flash Memory chip on the motherboard, and lets you copy an updated version of the BIOS to the chip. Proceed with caution when using this program. If you erase the current BIOS and fail to write a new BIOS, or write a new BIOS that is incorrect, your system will malfunction. Refer to Chapter 3, Using BIOS for more information.*

### **WinFlash Utility**

The Award WinFlash utility is a Windows version of the DOS Award BIOS flash writer utility. The utility enables you to flash the system BIOS stored on a Flash Memory chip on the motherboard while in a Windows environment. This utility is currently available for WINXP/2000. To install the WinFlash utility, run WINFLASH.EXE from the following directory: \UTILITY\WINFLASH 1.51

This concludes Chapter 4.

## Using the Motherboard Software